

GLOSSARY



GLOSSARY OF ACRONYMS AND TERMS

Blocks – Trains cannot collide with each other if they are not permitted to occupy the same section of track at the same time, so railway lines are divided into sections known as *blocks*. In normal circumstances, only one train is permitted in each block at a time.

Blue Alignment– Defined in the Danbury Branch Study as the track alignment modification that will allow for a 10-minute travel time reduction along the Branch

Build Alternative – in the Phase I Danbury Branch Study, the Build Alternative refers to several improvements that can be implemented in a phased-in approach and which would include a number of options, including track alignment modifications, addition of rail passing sidings, and railway electrification. Phase II of the Study will provide in-depth analysis of these options.

Catenary – Defined as the system of overhead contact wires suspended above the tracks, which supply power to electric trains.

CEPA – Connecticut Environmental Policy Act, which runs in parallel with NEPA (See NEPA). The purpose of CEPA is to identify and evaluate the impacts of proposed state actions which may significantly affect the environment. This evaluation provides the decision maker with information necessary for deciding whether or not to proceed with the project. The process also provides opportunity for public review and comment.

Compound Curve - A curve made up of two arcs of differing radii whose centers are on the same side, connected by a common tangent.

ConnDOT – Connecticut Department of Transportation, lead agency responsible for the Danbury Branch Study

Connecticut Rail Commuter Council – Formed by the Connecticut State Legislature, this group consists of rail commuters who act as a consumer liaison between rail riders and the Connecticut Department of Transportation, Metro North and Shore Line East railroads and advise the legislature regarding commuter issues.

Corridor – within this study the corridor refers to a rail and highway transportation corridor consisting of the regional Route 7 highway and the Danbury Branch rail line running north-south connecting the population centers of Norwalk, Wilton, Redding, Ridgefield, Bethel and Danbury. The corridor extends north along Route 7 to the towns of Brookfield and New Milford, but rail passenger service currently stops at Danbury.

CSX – CSX Corporation, based in Jacksonville, Fla., owns companies providing rail, intermodal and rail-to-truck transload services that are among the nation's leading transportation companies,

connecting more than 70 river, ocean and lake ports, as well as more than 200 short line railroads.

CTC – Communication and Train Control Project, also known as the Danbury Branch Signalization Project 302-0007. This project would introduce an automated signal system on the Branch. This would allow automatic switching of equipment to passing sidings. Currently, the train conductor on the Branch is required to manually throw the switch allowing trains to enter a siding. The project is expected to also include construction of poles that can be used for eventual electrification of the Branch.

Curvature – The amount by which the rail line deviates from being straight.

Degree of Curve – A measure of curvature used in civil engineering for its easy use in layout surveying.

DMU – Diesel Multiple Unit is the general term for a diesel-powered train where a separate locomotive is not required because the engine and drivetrain are contained under various cars in the train. The rail vehicles are self-propelled coaches using a diesel-electric power supply.

Double Tracking – The current Danbury Branch line is a single-track railroad. Phase I of the study examined the feasibility of adding a second track to allow for bi-directional service on the Branch. The addition of the second track is typically referred to as “double tracking.”

Electrification – For the Danbury Branch Study, the reference is to railway electrification, which refers to the way to supply electric power to electric locomotives and electric multiple unit vehicles (see EMUs). The typical railway electrification system in Connecticut includes an overhead contact system to conduct current to power the train, also known as catenary system using alternating current or ac; third rail systems using direct current, or dc power are found in other states. The Danbury Branch was electrified using an overhead catenary system until 1961, when the system was removed in favor of diesel equipment.

EMU – Electric Multiple Unit equipment, or rail vehicles that are self-propelled coaches using an electric power supply, either from overhead contact wires or a third rail contact system. On the New Haven Line, this equipment has been named M2, M4, M6, M7 and M8 depending on which generation of electric vehicle it is.

Environmental Justice – Environmental justice refers to the fair and equitable treatment of people regardless of race or income level in the implementation of environmental laws, regulations and policies. The Federal Highway Administration and Federal Transit Administration has underlined three fundamental principles that define what environmental justice is. These are:

- Avoid, minimize, or mitigate disproportionately high and adverse human health or environmental effects, including social and economic effects, on minority and low-income populations.
- Ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
- Prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

Feeder Bus Service - Feeder bus service typically connects outlying areas to other bus routes or rail/multimodal transit stations where passengers can connect to direct service to urban areas. A feeder bus route to a Danbury Branch rail station would connect passengers to direct service to Grand Central Terminal, as example.

Four Quadrant Gates – These are a special series of automatic crossing gates used as an adjunct to flashing light signals to control traffic on all lanes at a highway – rail grade crossing.

FRA – U.S. Federal Railroad Administration was created by the Department of Transportation Act of 1966 (49 U.S.C. 103, Section 3(e)(1)). The purpose of FRA is to: promulgate and enforce rail safety regulations; administer railroad assistance programs; conduct research and development in support of improved railroad safety and national rail transportation policy; provide for the rehabilitation of Northeast Corridor rail passenger service; and consolidate government support of rail transportation activities.

FTA – Federal Transit Administration, one of ten modal administrations within the U.S. Department of Transportation. Headed by an Administrator who is appointed by the President of the United States, FTA functions through a Washington, DC, headquarters office and is responsible for supporting public transportation. This includes buses, subways, light rail, commuter rail, monorail, passenger ferry boats, trolleys, inclined railways, and people movers. The Federal government, through the FTA, provides financial assistance to develop new transit systems and improve existing ones.

GCT – Grand Central Terminal, New York City. This is the terminus of the New Haven Line, and is the final stop for Danbury Branch rail commuters in Manhattan.

Green Alignment – Defined in the Danbury Branch Phase I Study's Engineering Evaluation Task 2 report as the track alignment modification that will allow for a 15-minute travel time reduction along the Branch

“Home” Signals – In a traditional mechanically signaled area, it is most common for a signal box to have two stop signals governing each line. The first reached by a train is known as the home signal. The last stop signal, known as the starting or section signal, is usually located past the points etc. and controls entry to the block section ahead. The distance between the home and starting signals is usually quite short (typically a few hundred yards), and allows a train to wait

for the section ahead of it to clear without blocking the line all the way back to the previous stop signal.

Housatonic Railroad Company, Inc. – Headquartered in Canaan, CT, they operate freight rail service and owns track from Danbury to New Milford.

HVCEO – The Housatonic Valley Council of Elected Officials is a regional planning agency responsible for coordinating planning activities in ten municipalities in western Connecticut. These are Bethel, Bridgewater, Brookfield, Danbury, New Fairfield, New Milford, Newtown, Redding, Ridgefield and Sherman, CT. HVCEO has the responsibility under federal law to administer a transportation planning program, provides a continuing forum on municipal management and planning, and is the census data census for the area.

Interlocking – The arrangement of signal apparatus that prevents conflicting movements through an arrangement of tracks such as junctions or crossings. The signaling appliances and tracks are sometimes collectively referred to as an *interlocking plant*. An interlocking is designed so that it is impossible to give *clear* signals to trains unless the route to be used is proved to be safe.

Meets – Where two trains meet going in opposite directions.

MNR – MTA Metro-North Railroad, second largest commuter railroad in the U.S. and the operator of commuter rail service in Connecticut.

MP – Milepost along the railroad right-of-way. For the Danbury Branch, Milepost (MP) 0 is the switchpoint in South Norwalk where the Branch line begins.

NEPA – National Environmental Policy Act, passed in 1969 and signed into law January 1, 1970, established an environmental policy for the nation and an interdisciplinary framework for environmental planning by federal agencies.

New Milford Extension – The Danbury Branch Phase I study includes evaluating the feasibility of extending passenger rail service from Danbury, currently the terminus of Branch line passenger service, to New Milford, a distance of approximately 14 miles. This section currently is a freight only line owned and operated by the Housatonic Railroad Company, Inc. of Canaan, CT.

New Milford Rail Service Restoration Society – Non-profit organization headquartered in New Milford supporting the return of rail passenger service to the towns of Brookfield and New Milford and possibly other communities.

No Build Alternative – The National Environmental Policy Act (NEPA) also refers to this as the “no action” alternative. When considering alternatives under the NEPA process to improve transportation, a “no build” alternative must be considered.

Overtakes – Where one train passes another train going in the same direction.

Passing Siding - For the Danbury Study, a passing siding refers to a stretch of rail tracks that provide a place for a train to wait temporarily while the other train passes, as the Danbury Branch is a single-track line. This configuration allows the sequence of trains along a track to change and trains to pass one another to better utilize the single track.

Peak Hour Service – This refers to morning and evening rush hour service on rail and transit systems, defined by MTA Metro North Railroad as occurring between the hours of 5:30 AM to 9 AM and 4 PM to 8PM. Higher fares are charged during peak hour periods.

Providence & Worcester Railroad (P&W) – P&W is a regional freight railroad operating in Massachusetts, Rhode Island, Connecticut and New York. The Company is the only interstate freight carrier serving the State of Rhode Island and possesses the exclusive and perpetual right to conduct freight operations over the Northeast Corridor between New Haven, Connecticut and the Massachusetts / Rhode Island border.

Public Outreach Plan - Also known as Public Involvement Plan (PIP), prepared at the beginning of a project. The public outreach plan is established to address the need to increase public awareness of the study amongst a divergent group of agencies, officials, commuters, stakeholders and interested parties; to solicit public opinion regarding study activities and provide input into the study’s outcome. Overall, the plan is intended to enhance public involvement and support for the process that will lead to improvements in Danbury Branch commuter rail service.

Purpose and Need Report – in the majority of transportation studies, the two elements of this report are identification of the “need,” which is defined as the transportation deficiency (ies) in the study area, and “purpose,” which is defined as the objectives that will be met to address the/those deficiency (ies).

R.O.W. - Right of Way is used in this report as a general term denoting land, property, or interests therein acquired for or devoted to the railroad. It is typically land or property owned by the operating railroad, in this case either Connecticut Department of Transportation or the Housatonic Railroad company Inc.

Rail Valuation Maps – These are maps or plans that indicate property owned by a RR company. Most were originally prepared in the early 1900s, and subsequent property transactions such as sales and easements have been noted on them. The topographical features, however, are not kept current.

Red Alignment – Defined in the Danbury Branch Phase I Study’s Engineering Evaluation Task 2 report as the track alignment modification that will allow for a 5-minute travel time reduction along the Branch

Skip Stop and Express Service – these are methods of modifying existing rail service patterns to improve travel times by reducing the number of station stops.

Spiral – A curve composed of a circular curve with a transition curve, which is tangent to both the straight and the circular curve, on both sides. The first transition curve gradually changes from zero curvature to the finite curvature of the circular curve. The second transition curve gradually changes from the finite curvature of the circular curve back to zero curvature. Spiral curves aid the ride quality and safety of vehicles navigating the curve.

Substation – A subsidiary station of an electricity generation, transmission and distribution system where voltage is transformed from high to low or the reverse using transformers. An important function performed by a substation is switching, which is the connecting and disconnecting of transmission lines or other components to and from the system. Switching events may be "planned" or "unplanned".

Superelevation – This refers to the differences in height between the outer and inner rail on a curved section of track, which affects how fast a train can travel through the curve. The amount of superelevation required is determined by what the proposed speed of the track is – the maximum allowed is four inches. In track geometry parlance, superelevation is the “intended increase in elevation of the outer rail above the inner rail in a curve”

Switchgear – This term refers to the combination of electrical disconnects, fuses, and/or circuit breakers used to isolate electrical equipment. Switchgear is used both to de-energize equipment to allow work to be done and to clear faults downstream. In substations, switchgear is located on both the high voltage and the low voltage side of large power transformers

SWRPA – South Western Regional Planning Agency **SWRPA** – The South Western Regional Planning Agency is the official regional planning organization for eight municipalities in lower Fairfield County, including Wilton, Darien, Greenwich, New Canaan, Norwalk, Stamford, Weston and Westport.

Tilt Train – A tilt train consists of rail vehicles equipped with a mechanism to induce added vehicle tilt in curves, thereby enabling the ability to increase speeds in curves while maintaining passenger comfort. Tilting compensates for the amount of centrifugal force a passenger experiences going through a curve. A tilt train system is typically employed on high speed rail equipment that uses conventional rail lines with numerous curved sections, such as the Northeast Corridor between New Haven, CT and Boston, MA. Amtrak’s Acela is an example of a tilt train.

Track Alignment – refers to the horizontal layout of track in a rail system. Tangent track refers to track in a straight line.

Track Geometry – This refers to the levelness and alignment of the rails.

Traction Power Substation – transfers electric power usually from the local utility power grid, to a voltage and frequency required to supply power to the rail electrification system.

TSB – Connecticut Transportation Strategy Board – Fifteen-member board comprised of business, state agency and transportation investment area representatives appointed by the Governor of Connecticut, the Speaker of the State House of Representatives and the President Pro Tempore of the State Senate. Their role is to review transportation issues in the state and recommend a statewide transportation strategy and action plan.

TSM Alternative – Stands for ‘Transportation System Management’ alternative. The U.S. Department of Transportation’s Federal Transit Administration defines TSM as an improvement that represents the “best you can do without a guideway investment.” Typically this includes action items like adding skip stop and/or express rail service, new park and ride lots, and addition of transit user information systems.

Turnouts – A mechanical installation enabling railway trains to be guided from one track to another at a railway junction.

Wayside – This term refers to the area that is trackside. The term presumably has its origin from the term right-of-way.

Yard Limits – The defining point where a yard operations begin or end. In general, in a yard trains operate at restricted speed able to stop in 1/2 their visibility.



CONNECTICUT
DEPARTMENT OF
TRANSPORTATION

In Cooperation with
SWRPA
South Western Regional Planning Agency



U.S. Department
of Transportation
**Federal Transit
Administration**

